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see PCT Gazette No. 19/2001 of 10 May 2001, Section II
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): PYKETT, Mark, J. [US/US]; 223 A Main Street, Boxford, MA 01921 (US). ROSENZWEIG, Michael [US/US]; 20 Fayette Street, #2,
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: METHODS AND DEVICES FOR OBTAINING NON-HEMATOPOIETIC LINEAGE CELLS FROM HEMATOPOIETIC PROGENITOR CELLS

(57) Abstract: This invention pertains to hematopoietic cells, and more specifically to methods and devices for obtaining non-hematopoietic lineage cells from hematopoietic progenitor cells. Non-hematopoietic lineage cells obtained by the foregoing methods of the invention are useful in the therapeutic treatment of a variety of pathologic conditions in humans and other species.

WO 01/21766 A3

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>C1005/7008W0</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/US 00/ 26020</b>	International filing date (day/month/year) <b>22/09/2000</b>	(Earliest) Priority Date (day/month/year) <b>23/09/1999 ✓</b>
Applicant <b>CELL SCIENCE THERAPEUTICS</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.  
☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☒ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☒ furnished subsequently to this Authority in computer readable form.

☒ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☒ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☒ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/26020

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N5/08 A61K35/28 A61K35/14 A61K48/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, PAJ, WPI Data, MEDLINE

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BAGLEY J ET AL: "EXTENDED CULTURE OF MULTIPOTENT HEMATOPOIETIC PROGENITORS WITHOUT CYTOKINE AUGMENTATION IN A NOVEL THREE-DIMENSIONAL DEVICE" EXPERIMENTAL HEMATOLOGY, US, NEW YORK, NY, vol. 27, no. 3, March 1999 (1999-03), pages 496-504, XP000881139 ISSN: 0301-472X the whole document --- -/--	1-4

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*Z\* document member of the same patent family

Date of the actual completion of the international search

26 March 2001

Date of mailing of the international search report

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International Application No

PCT/US 00/26020

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CHENG L ET AL: "HUMAN MESENCHYMAL STEM CELLS SUPPORT PROLIFERATION AND MULTILINEAGE DIFFERENTIATION OF HUMAN HEMATOPOIETIC STEM CELLS" BLOOD,US,W.B. SAUNDERS, PHILADELPHIA, VA, vol. 92, no. 10, SUPPL. 01, 1998, page 57A XP000857628 ISSN: 0006-4971 the whole document	1-4
A	WO 99 15629 A (CYTOMATRIX) 1 April 1999 (1999-04-01) the whole document	1-23
A	WO 99 26644 A (UNIVERSITY OF SOUTHERN CALIFORNIA) 3 June 1999 (1999-06-03) the whole document	1-23
P,X	BANU N ET AL: "Targeted differentiation of CD34+ progenitors in a three-dimensional matrix." BLOOD, vol. 94, no. 10 SUPPL. 1 PART 2, 15 November 1999 (1999-11-15), page 162b XP000881148 Forty-first Annual Meeting of the American Society of Hematology;New Orleans, Louisiana, USA; December 3-7, 1999 ISSN: 0006-4971 the whole document	1-23
P,X	BANU N ET AL: "Neuronal, mesenchymal and hematopoietic cell derived from CD34-Lin-cell from adult bone marrow." EXPERIMENTAL HEMATOLOGY (CHARLOTTESVILLE), vol. 28, no. 7 Supplement 1, July 2000 (2000-07), pages 46-47, XP002163855 29th Annual Meeting of the International Society for Experimental Hematology;Tampa, Florida, USA; July 08-11, 2000 ISSN: 0301-472X the whole document	1-23
P,X	WO 99 64565 A (OSIRIS THERAPEUTICS) 16 December 1999 (1999-12-16) the whole document	1-4
P,X	WO 00 17326 A (MUSC FOUNDATION FOR RESEARCH DEVELOPMENT) 30 March 2000 (2000-03-30) the whole document	1-23

# INTERNATIONAL SEARCH REPORT

Information on patent family members

ii. International Application No

PCT/US 00/26020

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9915629 A	01-04-1999	AU 9582398 A CN 1272878 T EP 1015558 A	12-04-1999 08-11-2000 05-07-2000
WO 9926644 A	03-06-1999	AU 1706399 A AU 6648598 A EP 0973539 A EP 1047441 A WO 9832457 A	15-06-1999 18-08-1998 26-01-2000 02-11-2000 30-07-1998
WO 9964565 A	16-12-1999	AU 4336499 A AU 4336599 A EP 1084230 A WO 9964566 A US 6030836 A	30-12-1999 30-12-1999 21-03-2001 16-12-1999 29-02-2000
WO 0017326 A	30-03-2000	AU 6056299 A	10-04-2000